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Phone 321-867-7497

Fax 321-867-1144

RehabWorks is a free on-site musculoskeletal rehab service for badged KSC and CCAFS employees with a work, non-work or sports-related injury. Prompt treatment for injuries. Checkout our Web page.

In The Next Issue

“How ATCs deal with extreme heat and extreme sports”

Web Links

Play It Safe is a program provided by the American Academy of Orthopaedic Surgeons.

http://orthoinfo.aaos.org/fact/thr_report.cfm?thread_id=2&topcategory=sports

Childhood Sports Injuries and Their Prevention - A Guide for Parents with Ideas for Kids

http://www.niams.nih.gov/hi/topics/childsports/child_sports.htm

From The Supervisor

Kids & Exercise

This issue of Athletic Training Times focuses the spotlight on something near and dear to us all – children. Whether they’re our own, a niece or nephew, or a child we coach on a sports team, concern for their health and well-being comes from somewhere deep down inside of us. And well it should. They are our future; and in order to preserve theirs, the more knowledge we possess on health, wellness, physical activity and injury prevention, the better prepared we are to protect them from injury and lead them (hopefully by example) towards healthy, physically active lives. The following information is from The Physician and Sportsmedicine... an outstanding resource for all of you parents, aunts, uncles, and coaches. I hope that you enjoy this latest issue and the time spent with the ones you love.

One quick editorial note... Beginning with this issue, Athletic Training Times will be published bi-monthly. Archived copies can be found on the RehabWorks website.

Guidelines for Parents of Children in Sports

- Make sure your children know that—win or lose—you love them and are not disappointed with their performance.
- Be realistic about your child’s physical ability.
- Help your child set realistic goals.
- Emphasize improved performance, not winning. Positively reinforce improved skills.
- Don’t relive your own athletic past through your child.
- Provide a safe environment for training and competition. This includes proper training methods and use of equipment.
- Control your own emotions at games and events. Don’t yell at other players, coaches, or officials.
- Be a cheerleader for your child and the other children on the team.
- Respect your child’s coaches. Communicate openly with them. If you disagree with their approach, discuss it with them.
- Be a positive role model. Enjoy sports yourself. Set your own goals. Live a healthy lifestyle.

<http://www.physsportsmed.com/children.htm>

Sincerely,

Mary K. Kirkland, MS, ATC/L, CSCS

WEBSITE: <http://rehabworks.ksc.nasa.gov>

The Athletic Training Room

Exercise and Children's Health

Regular exercise is an important health maintenance strategy for children and adolescents: It facilitates weight control, helps strengthen bones, and can improve cardiovascular risk factors. Mental health may also benefit. An active childhood may also lay the groundwork for a lifetime of fitness.

Every child and adolescent needs exercise. It is a sound and largely risk-free investment in their present and future health. Ignoring health promotion in young people may reflect two beliefs: (1) that though inactivity is widespread in adults, children are naturally and spontaneously active, and (2) that the health risks associated with a sedentary lifestyle such as diabetes and heart disease are far more pressing in adults.

Ample evidence, however, documents that young people are not the dependably kinetic creatures of popular imagination. Fewer than half of US children engage in activity sufficient for cardiovascular benefit and long-term health promotion. According to the surgeon general's report on physical activity and health, activity levels decline as grade levels advance—dramatically so as children enter adolescence. Nearly half of US young people ages 12 to 21 are not regularly vigorously active. One-fourth engage in no vigorous activity, and 14% report no recent activity at even the light-to-moderate level. Girls are at greater risk of inactivity than boys, particularly during and after puberty.

These trends have not been reversed with physical education. Just over one third of elementary and secondary schools offer daily physical education classes. High school enrollment in such classes has declined in recent years, from 42% in 1991 to 25% in 1995. This decline is not without cost: A sedentary lifestyle in young people can have negative health consequences both now and later.

How Exercise Improves Kids' Health

Weight control. According to a recent statistical analysis, nearly one fourth of American children were overweight in 1991, up 20% from 1981. Increasing physical activity while restricting calorie intake has been documented as an effective weight loss strategy.

The need for obesity interventions is clear. Overweight children are at increased risk of many health problems, including hypertension, hyperlipidemia (high cholesterol), type 2 diabetes, growth hormone problems, and respiratory and orthopedic problems. Self-esteem and socialization frequently suffer. And that is just the beginning. Not only does obesity follow children into adulthood—40% of overweight children and 70% of overweight adolescents become obese adults—obesity in adolescence is independently associated with chronic diseases that develop in adulthood.

Bone building. Physical activity in childhood may have lasting effects on bone development. Exercise may lower

osteoporosis risk by increasing bone mineral density. Though most attention has focused on exercise in later years to reduce or restore bone loss, the skeleton appears to be most responsive to the effects of activity during growth.

Cardiovascular protection. While cardiovascular disease is primarily manifested in adulthood, risk factors appear much earlier in life and typically persist. Evidence links lipid and lipoprotein profiles in childhood and adolescence with the development of atherosclerotic lesions and high-normal blood pressure in young people. These conditions significantly increase the risk of essential hypertension (high blood pressure) in adulthood.

Mental health benefits. That exercise has a beneficial effect on mental health for children as well as adults is an attractive, intuitive, and widely held notion. For example, one review states that most studies, which have primarily involved adults, have documented improvements in depressive and anxiety symptoms.

Exercise may improve the ability of young people to cope with stress. A study of 220 adolescent girls during a high-stress period found that those who adhered to a rigorous exercise program reported less physical and emotional distress than those who exercised less.

Tailoring the Exercise Program

No single sport or exercise regimen is uniquely beneficial for the physical or emotional well-being of children. It is far more important to find, with the help of parents, activities that will be interesting and enjoyable for the child and are appropriate to his or her age and physical abilities (see "Which Sports When?").

Though it is not necessary to exercise at anything approaching maximum capacity, aerobic activities are ideal. A reasonable goal, as suggested by the recent surgeon general's report on health and physical activity, is 30 minutes of moderate activity on most days of the week. Greater daily activity such as walking or climbing stairs also contributes to overall fitness and well-being.

Strength training has grown in popularity, and even prepubescent children can achieve measurable gains with little risk of injury and no adverse effect on bone, muscle, or joint development. Adequate supervision is essential, however, with emphasis placed on correct form and technique. Children should not lift maximum weights and should avoid ballistic movements until skeletal growth is completed.

In some cases, physicians may steer children toward exercises that are appropriate to their strengths and vulnerabilities. Patients with ligamentous laxity, for example, might be encouraged to swim or bicycle rather than play sports such as basketball that involve pivoting and twisting. Times of rapid growth often increase vulnerability to certain injuries, and a temporary switch to low-impact activities can prevent injury during these times.

Minimizing Injury Risk

Safety is paramount. Though exercise-related mishaps are common—one study found that 22% of school-aged children sustained injury during physical education class or

The Athletic Training Room (Cont'd)

in outside sports each year—most injuries are minor. A prudent approach will minimize overuse injuries and more serious trauma.

For example, parents should assess whether organized sports are conducted with appropriate attention to safety and injury prevention. Little League, for example, uses pitch counts to avoid overuse injuries; Pop Warner football divides players into leagues based on age and weight. While there is nothing wrong with competition, children should not be encouraged to push themselves to the point at which injuries are more likely.

Children should not play when in pain or take painkillers to participate. Coaches and parents should be alert to signs that an overuse injury may be developing, such as limping on the field or rubbing of the arm after throwing. In general, sensible precautions will minimize risk. Children should use appropriate equipment for each sport, including footwear that provides appropriate support and traction. Bicycle helmets are a must. Play areas should be free of debris, ruts, and divots.

Flexibility Exercises - Stretching and warm-up to minimize hamstring pulls and similar injuries should become habitual preludes to strenuous exercise. Children's bones often grow at a faster rate than adjacent muscles and tendons. Bone growth plates also grow at different rates. Seventy percent of the growth of the lower extremities occurs at the growth plates of the knees. These factors predispose children and adolescents to muscle tightness, especially at the hamstrings and quadriceps.



Traffic Safety - Don't overlook the obvious. The most common, severe, recreation-related injuries to children are caused by motor vehicles. Play areas should be away from traffic, and safe practices emphasized for walking and biking. The risk of injury when traveling to or from organized or casual play areas is far higher than the risk of play itself.

Sun and heat protection - Children, like adults, should wear sunscreen when exercising outside. To avoid dehydration, to which children's smaller size makes them more vulnerable, they should be taught to drink fluids before and after exercise and during activity that lasts longer than 20 to 30 minutes—without waiting until they are thirsty. Though carbohydrate-electrolyte sports drinks may have no special merit, they may enhance voluntary drinking because of their taste.

Which Sports When?

Though exercise is good for all children, every activity isn't suitable for every child. One question that often comes up in discussions with parents is age: When is the child ready

for distance running (or skiing, or weight training)? "It's a matching game," says Steven J. Anderson, MD, clinical professor in the Department of Pediatrics at the University of Washington in Seattle and chair of the American Academy of Pediatrics (AAP) Committee on Sports Medicine and Fitness. "The idea is to match the demands of the sport or exercise activity to the developmental maturity of the child."

Motor and Cognitive Readiness

Readiness issues are clearest in motor development, according to Sally Harris, MD, MPH, a pediatrician in the Department of Sports Medicine at the Palo Alto Medical Foundation in Palo Alto, California, and pediatric chair of the AAP Section on Sports Medicine and Fitness. Skills relevant to sports, such as throwing and kicking, can't be rushed any more than developmental milestones like rolling over or sitting up. "If the child doesn't have them, the sport will be a frustrating experience."

Less obvious but also important are the cognitive and social capacities that enable the child to interact with teammates, visualize their place on a team, and understand strategy. "In these areas, adults forget that children are not as mature as they are," Harris says.

Because the pace of development varies widely, it's impossible to specify sports-readiness ages with precision. "We go mostly by common sense and experience," Harris says. But she does suggest some general guidelines for the following age-groups:

- **2 to 5 years.** Children are just learning fundamental skills like throwing, catching, running, and jumping. It's best to stick with activities that use these skills but don't combine them in a complicated way.
- **6 to 9 years.** Children put the fundamentals together in moves related to actual sports: throwing for distance or accuracy; rearing back to kick a ball. Better memory and decision-making enable them to deal with basic strategies of simplified forms of baseball or soccer.
- **10 to 12 years.** Youngsters can master the complex motor skills they need and have the cognitive ability to learn strategies for "adult" forms of most sports, including football and basketball.

Readiness for competition is controversial. "Competitive sports for preschool-age kids is frowned upon," Anderson says. "Even in early elementary school, the emphasis should be on learning basic skills and rules, without the added pressure of competition." Equal participation rather than winning should be the goal at this age.

Injury prevention is a legitimate concern but rarely an age-limiting factor. "People worry about intensive training for young children, but that's not the time of highest risk," Harris says. Overuse and traumatic injuries are actually more common during and after puberty, as size, strength, and growth rate increase. The AAP discourages headfirst sliding in baseball for children under age 10, for example. The risk of injury may actually be greater for adolescents, however, because they are heavier and faster than their younger counterparts.

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Sport-Specific Concerns

In general, rule modifications and special equipment have widened the sports activity options for children, and “readiness” often comes down to motivation: the point at which participation reflects the child’s real interest, as opposed to adult or peer pressure. In conversations with children and parents, questions often arise about the demands of specific sports:

Soccer. Children can kick the ball by age 6 or 8 but can’t fully grasp concepts of player positioning, passing, and making plays until several years later. The result: “bee-hive soccer,” a popular adaptation in which they swarm around the ball without much concern for adult rules.

Baseball. Most 6-year-old children lack the eye-hand coordination to hit a pitched ball but can play “tee-ball,” swinging at the ball on a tee. Bigger bats and balls, smaller fields, and more fielders also make the game more fun at this age. For children under 12 in organized leagues, “pitch count” guidelines (eg, limiting pitchers to 6 innings per week, or 2 days rest for every 30 pitches thrown) reduce the risk of overuse injury.

Running. Distance running doesn’t seem to harm young joints or growth plates, and there’s no reason to preclude even marathoning for prepubertal children. Children do, however, have less tolerance for heat stress; so adequate hydration before, during, and after running is essential. The same applies to triathlons if they are specifically designed for the age group. However, the emphasis should be on fun and fitness rather than competition.

Strength training. Using free weights and machines to increase strength appears to pose no great risk of injury, even to prepubertal youngsters. However, the activity should be well supervised, and children should not attempt maximal weight—the most they can lift just one time—before skeletal maturity (typically at age 15 in girls and age 17 in boys). Before that point, they should likewise avoid ballistic maneuvers such as Olympic-style weight lifting (a single-repetition maximum lift in two stages: the snatch and the clean and jerk) power lifting (three separate maximum lifts), and bodybuilding.

Theodore Ganley, MD, with Carl Sherman

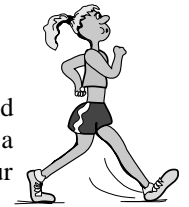
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The RehabWorks Staff

Supervisor	Mary K. Kirkland, MS, ATC/L, CSCS
Assist. Athletic Trainer	Erik T. Nason, MS, ATC/L, CSCS
Medical Records Clerk	Amy L. Rembert
Supervising Physician	Arthur A. Arnold, MD

Ask The ATC

Kids & Exercise



Q. What exercise is best for kids?

A. Children and adolescents, like adults, should participate in vigorous physical activity on a regular basis—at least a half hour, three or four times a week.

The best kind of exercise is one your child will do regularly. Help him or her find activities that are fun and rewarding. Baseball, walking, soccer, jumping rope—anything’s OK if it’s enjoyable and done safely.

Preaching or pushing kids into activities they don’t like is likely to backfire. Youngsters who learn that exercise is a chore all too often become inactive adults. Remember, too, that exercise needn’t be organized. Encourage your child to take the active option in daily life: Walk instead of ride, take the stairs, not the elevator, develop an interest in hands-on activities like building a sandcastle. Short bursts of activity add up.

Q. What about safety?

A. Minor mishaps such as bruises and sprains are a fact of life for on-the-go youngsters, but simple precautions will minimize the risk of serious injury.

- Make sure your kids’ activities are right for their age, size, and physical development. Highly competitive distance running may be great for a high schooler but too stressful—and not much fun—for an 8-year-old. Contact sports can pose unnecessary dangers for smaller kids. When in doubt, check with your doctor.
- Keep team spirit healthy. Competition is fine—if it isn’t overdone. Coaches and parents with a “winning-is-everything” attitude encourage kids to push too hard and to play when injured. Talk it over with the people who run your child’s school or league team.
- Ensure the use of proper protective equipment for each sport or activity, including helmets for bikers.
- Seek medical advice if your child is limping after exercise, or if muscle soreness lasts throughout the day or night. A child sidelined by an injury shouldn’t get back into action until he or she is pain-free.

Q. Is it good to get the whole family involved?

A. Kids learn by example: When a parent gets involved with the child’s activity, the child is three times more active than children with inactive parents. Why not foster fitness together? Make long walks, cycling, and active vacations a family tradition.

Source:

Theodore Ganley, MD, with Carl Sherman

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http://www.physsportsmed.com/issues/2000/02_00/ganley_pa.htm